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ABSTRACT

The purpose of this study is to examine the effect of teacher expectancy on student performance. The question is asked: Do teachers in secondary grades treat students for whom they have low expectations in ways that tend to fulfill them, and if so, what is the nature of this differential treatment? Differential teacher behavior (quantitative and qualitative differences in teacher-student interaction) was examined in four seventh-grade classrooms. Participating teachers were asked to rank the students in their class in order of their achievement. Students were ranked as high, middle, or low achievers. The ratings were used as the measure of teachers' expectations for classroom performance of the students. Overall results indicated that there were differences in the interaction of teachers with students at the various achievement levels. Comparison of high, middle, and low expectancy groups revealed quantitative differences in teacher-student contact but little difference in the quality of interaction patterns. The most notable finding of this study was that low achievement students received much less teacher contact than did the high and middle achievers. The results of this study provide support for the hypotheses that with grade level increase, qualitative differences in teacher-student interaction diminish, while quantitative differences may become more sensitive indicants of differential teacher behavior. (JD)

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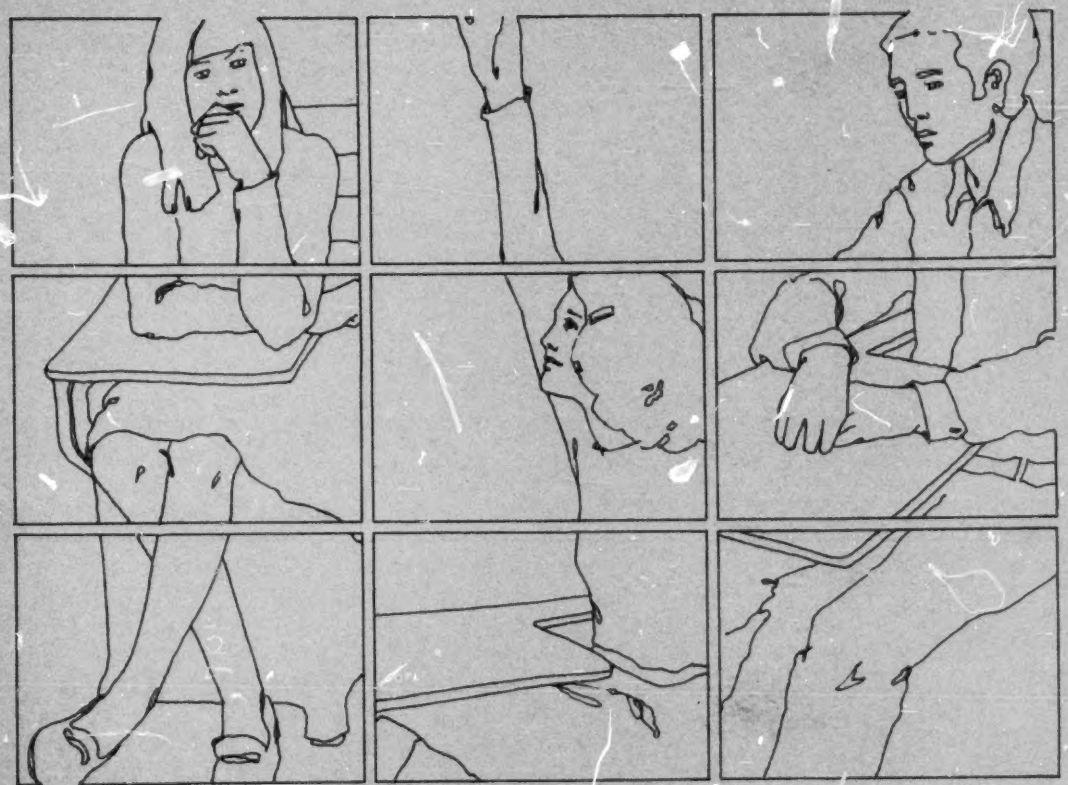
Who talks in junior high classrooms?



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WHO TALKS IN JUNIOR HIGH CLASSROOMS?

R&D Report Series
68

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Numerous writers have claimed that low teacher expectations hamper student performance (Deutsch, 1963; Wilson, 1963; Katz, 1964; MacKinnon, 1962; Bloom, 1968; Clark, 1963). These authors suggest that teachers somehow communicate differential performance expectations to their students, and that students then react to this treatment in such a way as to cause the teachers' expectations to function as self-fulfilling prophecies.

The first attempt to scientifically test the self-fulfilling prophecy hypothesis in the classroom was made by Rosenthal and Jacobson (1968). They found that achievement data taken at the end of the school year were significantly affected by performance expectations induced in the teachers at the beginning of the year, and that the nature of the effects observed was consistent with the idea that teachers' expectations function as self-fulfilling prophecies. The methodology in this study and the veracity of its data have been severely criticized (Barber and Silver, 1968; Thorndike, 1968; Snow, 1969; Taylor, 1970), so that it cannot be unequivocally accepted as a demonstration of self-fulfilling prophecy effects in the classroom. Furthermore, a replication of this work by Claiborn (1969) found no evidence to support the self-fulfilling prophecy hypothesis. These two contradictory studies make it difficult to determine what, if anything, took place. Furthermore, neither study identified or measured any of the events intervening between the inducement of expectations and the administration of the criterion achievement test.

Evidence that teacher expectancy effects exert influence on student performance has been demonstrated in several other classroom studies (Little, 1968; Flowers, 1966; Schrank, 1968; Palardy, 1969). However, none of these studies included observational measures to show how teachers communicate expectations to students. Beez (1967), in a brief laboratory study, found that teachers attempted to teach more symbols (the experimental task) to preschoolers who had been labeled as better intellectual prospects than they did to those who had not been given this label. Similarly, Rothbart, *et al.*, (1971) found that preservice teachers in an experimental setting spent more time attending to (speaking to, looking at) high expectation students. Also, the high expectation students talked more during discussions. As in the Beez study, the teacher expectations were fictions induced by the experimenters--the students had actually been matched for IQ and teacher ratings of personality.

What about ordinary classrooms? How are expectations communicated in these settings? Rosenthal and Jacobson did not claim to understand how teachers' expectations are communicated to pupils. They did speculate that perhaps students expected to do well received more rapid reinforcement and/or increasingly appropriate reinforcement than students expected to do average or poor work. Thus they implicitly suggest that teacher expectations are communicated through differential teacher behavior.

There is a great deal of literature to suggest that teachers do, in fact, treat their students very differently. Good and Brophy (1971) review a number of studies indicating that

student-teacher interaction consistently varies with sex, social status, and achievement level of students. Since this paper is more narrowly focused on differential teacher expectations for student performance, reference will be made here only to a few studies showing that teacher behavior may be quite dissimilar toward high-and low-achieving students. When teacher interactions with high- and low-achieving students are compared, both qualitative and quantitative differences are found.

deGroat and Thompson (1949) reported that high achievers more frequently received teacher praise, while low-achievers received a disproportionate share of teacher disapproval. Similarly, Hoehn (1954) reported that the low-achieving student received a greater proportion of conflictive and dominative teacher contacts, while the high-achieving student received more promotive and supportive contacts. The finding of Lahaderne (1967) that the quality of teacher-student interaction varies with student achievement level is compatible with the previous findings of Hoehn and de Groat and Thompson. Good (1970) reports not only more positive feedback for high-achievers in four first-grade classrooms, but also more response opportunities. Rowe (1969) reported that teachers waited significantly less time (before calling on someone else or giving the student the answer) for their less capable students than for their more capable students. Thus, if lows were not to lose their response opportunity, they had to respond significantly more quickly than high-achieving students.

Although the above studies do show that teachers treat students differentially on the basis of achievement level, they do not provide direct evidence for the self-fulfilling prophecy hypothesis. For example, greater criticism of low-achieving students may be reaction to child behavior (gross inattention, etc.) rather than proactive discrimination by teachers.

The suggestion that differential teacher expectations lead to differential student achievement (Rosenthal and Jacobson, 1968) together with evidence that differential teacher attitudes result in differntial teacher behaviors (Silberman, 1969) and evidence of numerous within-class differences led Brophy and Good (1970) to look at the notion of "expectation effects" as a sequential chain of observable behaviors. Their conceptualization assumed the following research model:

(A) The teacher forms differential expectations for student performance;
(B) He then begins to treat students differently in accordance with his diffenential expectations;
(C) The students respond differently to the teacher because they are being treated differently by him;
(D) In responding to the teacher, each student tends to exhibit behavior which complements and reinforces the teacher's particular expectations for him;
(E) As a result, the general academic performance of some students will be enhanced while that of others will be depressed, with changes being in the direction of the teacher's expectations.

Preliminary research efforts were focused on step "B" of the model, wherein dyadic teacher-student interaction is observed and analyzed. In their observation of four first-grade classrooms, Brophy and Good (1970) found only minor differences in quantity of teacher contact between high- and low-achieving students. However, sharp qualitative differences in teacher-student interaction were reported.

Teachers demanded better performance from those children for whom they had higher expectations and were more likely to praise good performance when it occurred. In contrast, teachers more readily accepted poor performance from students for whom they held low expectations and were less likely to praise their good performance. Furthermore, when high-achievers were unable to respond or responded incorrectly, the teacher was more likely to provide a second response opportunity (repeating or rephrasing the question or giving a clue) than with low-achievers in the same situation. Conversely, they were more likely to terminate the interaction (supplying the answer, calling on another student) when reacting to lows than highs.

These results differ somewhat from those of Good's earlier study (1970), in which teachers called upon their high-achieving students much more frequently than their low-achieving students. This difference could be attributed to the fact that Brophy and Good observed in a school which utilized the tracking system, whereas Good did not. It is possible that because students were grouped according to ability, and hence objective differences among the children were minimized, differential teacher treatment would be of a more subtle nature. However, the differences could also be due to "school effects." All teachers may treat their high-and low-achieving students differently, but the nature of the differential behavior may be influenced by local school factors.

There is further evidence suggesting that teachers, at least in some situations, interact more frequently with their high-achieving students. Kranz, Weber, and Fishell (1970), report significant differences in dyadic teacher-student contact for high-and low-achieving students. But it should be noted that teacher behavior varied from classroom to classroom. For example, some teachers were rather consistent in the behavior they directed to average and low ability students, but differed notably in the way they interacted with highs. Other teachers treated highs and middles similarly, but differed sharply in their treatment of low-achieving students.

Research findings cited above have provided some information about the ways in which elementary school teachers communicate their differential expectations for student performance. It is important to note that although the nature of the findings differs from study to study (indicating perhaps that teachers communicate their expectations in different ways), differences in teacher treatment of high-and low-achievement students have been found by all investigators who have looked for them. However, virtually no examination of differential teacher behavior has taken place at the secondary level. The authors are aware of only one

study at the secondary level that examines how teachers behave within classrooms by student achievement level. Specifically, Horn (1914) examined opportunity for recitation in 229 classrooms (grades one through twelve) and found that, overall, students ranked by teachers in the highest quartile in "general-all-round ability" did about 40 percent more reciting than those in the lowest quartile. Moreover, the inequality increased with grade level so that in high school, the top quartile did twice as much reciting as those in the lowest quartile.

Although the methodology of the Rosenthal and Jacobson study makes it difficult to tell what, if any, change took place in child performance, their data do suggest that the most change in child performance occurred in first and second grade classrooms. This is reasonable in that the child's plasticity and dependence upon the teacher is proably greatest in these early grades. As the child grows older, his frame of reference progressively shifts from an adult orientation to a peer-approval frame of reference. The child's suggestibility in the first and second grade would appear to be at its maximum plasticity. The child has not formed clear expectations regarding his own ability relative to that of his classmates, and he is still learning what to expect and adjusting to the school as an institution. Thus, teachers in the early grades may have a more direct opportunity to help students "learn" their classroom role and their general status.

Some evidence suggests that teachers instructing older students may also treat them on the basis of how they expect them to perform (Little, 1968; Schrank, 1968). However, these studies do not show how the process works. It is important to assess the extent to which the teachers differentially treat students (in ways not attributable to differences in behavior among the students). Do teachers in secondary grades treat students for whom they have low expectations in ways that tend to fulfill them, and if so, what is the nature of this differential treatment? The purpose of this study was to provide information on the above question by examining differential teacher behavior (quantitative and qualitative differences in teacher-student interaction) at the junior high school level.

METHOD

Subjects

The research was carried out in four seventh-grade classrooms in a junior high school in the Southwest which serves an inner-city, lower-class population. The ethnic composition of the school was approximately 60% Mexican-American, 39% Afro-American, and 1% Anglo-American.

The four participating teachers (females, with teaching experience ranging from two to thirty-three years) came from a group which had previously been videotaped and who indicated a willingness to participate in further research efforts (i.e., having an observer in their classroom). The teachers were told that the focus of the study was the behavior of students at different achievement levels in the day-to-day classroom activities. The above explanation was intended to free the teacher of any re-

sponsibility to prepare specially for the days of observation. It was expected that, thus freed, she would continue with normal activities and normal interaction patterns.

Final selection of the four teachers (one math, one reading, and two social studies) was based on scheduling convenience for both the teacher and the observer. Three of the teachers were observed twelve times during a fixed class period over two months. Only ten observations were possible over the same period of time for one of the social studies teachers.

The tracking system was utilized in the school and classes observed covered the spectrum: two low-level classes, one combination low and medium and a medium-high-level class.

Ranking Procedure

Participating teachers were asked to rank the students in their class in order of their achievement. The ranking instructions were kept vague in order to allow the teacher to use her own subjective criteria in placing the students on the achievement continuum. The ratings were then used as the measure of teachers' expectations for the classroom performance of the students. Expectancy groups were formed from the rankings provided by the teacher. The top one-third of her ranked students were assigned to the high group, the middle one-third of the distribution formed the middle group, and the bottom third were placed into the low group. *The rankings were requested by mail, and returned by mail to the project supervisor. The classroom observer did not have access to the rankings until the data had been collected.

Observation System

Data were collected with the Brophy-Good dyadic observation system (Brophy and Good, 1970; Good and Brophy, 1970). The system is designed to capture dyadic teacher-student interaction. Coding categories apply whenever a teacher is dealing with a single student, whether that contact be public (exchanges during classroom discussions) or private (individual help with a homework problem).

The coding system preserves the identity of the student who has contact with the teacher, the sequence of the interaction (what happens after what), and the direction of the initial contact (student-or teacher-initiated). The system thus allows for separation of effects (differences in quantity or quality of interaction) due to the teacher from effects due primarily to the student. It also allows for direct comparison of teacher-student interaction patterns through conversions of frequency codes into percentages. In this way, effects due to differences in absolute frequencies are neutralized. In addition, the class may be treated as a group simply by combining the data for individual pupils. Reliability data were collected in field settings, and acceptable inter-rater reliability

*The number of students assigned into high, middle, and low groups was not equal in all classrooms, and in such classes extra students were placed in the middle group. The number of students per group follows: class 1 (7, 9,7.); class 2 (7,7,7); class 3 (9,10, 9); class 4 (9,9,9).

was established prior to data collection. (See Brophy and Good, 1970, for a description of the training process and reliability standards.)

RESULTS

Quantitative Differences

Overall results indicate that there were differences in the interaction of the teachers with students at the various achievement levels. Comparison of high, middle and low expectancy groups reveals quantitative differences in teacher-student contact but little difference in the quality of interaction patterns.

Table 1 presents the raw frequencies for the total number of response opportunities (chances to recite or answer a question) that high, middle, and low groups of students received in each class. This table shows that high and middle group students clearly received more response opportunities than lows. Note that a middle, high, low hierarchy was observable in each classroom.

Chi Square analyses comparing the three groups revealed differences significant at the .05 level.* While there was no difference between the high and middle groups, the high vs. low group comparison approached significance ($p < .10$), and the middle vs. low group comparison reached .05 level of significance. Thus, the low group stands out as having significantly fewer response opprotunities than highs or middles.

*These and other Chi Square analyses are based on distributions of median splits. Subjects were assigned to cells according to whether they were above or below their class median. The data from the four classes were then combined to yield a 2 (above or below median) x 3 (high, medium, or low expectancy) cell matrix.

Table 1. Number of Public Response Opportunities

	High	*Middle*	*Low*
Teacher 1	75	87	17
Teacher 2	46	69	30
Teacher 3	123	165	102
Teacher 4	19	21	9
Total	263	342	158

Table 2 shows data on the frequencies of teacher-initiated work contacts. These are contacts in which the teacher goes to one individual student (or calls him to her desk) to check or discuss assigned work. Most remedial teaching is done in these contacts.

Table 2. Teacher Initiated Work Interactions

	High	*Middle*	*Low*
Teacher 1	0	4	3
Teacher 2	19	50	43
Teacher 3	9	21	22
Teacher 4	20	34	23
Total	48	109	91

Chi Square analysis comparing the high vs. the middle groups approaches, but does not reach, significance. It is evident, however, that highs received approximately half the number of teacher-initiated work contacts as either the middle or low groups. In every classroom the highs received fewer of these contacts than lows or middles. This probably reflects teacher confidence that the highs did not need help in understanding assignments or supervision in carrying them out.

Table 3 provides the frequency of student-initiated work interactions. These interactions are private contacts between teacher and an individual student that are student initiated (student goes to the teacher's desk, student raises hand and teacher goes to student's desk).

Table 3. Student Initiated Work Interactions

	High	*Middle*	*Low*
Teacher 1	17	16	12
Teacher 2	37	63	16
Teacher 3	58	41	37
Teacher 4	37	43	14
Total	149	163	79

Table 3 demonstrates that lows initiate considerably fewer interactions with the teacher than either highs or middles. In every classroom lows initiate fewer teacher contacts than highs and middles. Also, although it is not obvious from the raw totals in Table 3, median splits for each class show that highs are most active in initiating work interactions with the teachers. A few students in the middle range of achievement had very high frequencies here, contributing heavily to the high totals for middles in Table 3. High-achievers, however, were consistently above their class medians on this variable.

Chi Square results favor the highs over both the middles ($p < .05$) and the lows ($p < .001$), with the middle-low comparison approaching significance.

Table 4 shows the total number of private teacher-student interactions. Although highs get only half as many teacher initiated work contacts as lows or middles, they initiate work interactions twice as often as the low group. The middle group both receives and initiates more interaction opportunities than either highs or lows.

Table 4. Total Number of Private Teacher-Student Interactions

	High	*Middle*	*Low*
Teacher initiated	48	109	91
Student initiated	149	163	79
Total number of private interactions	197	272	170

Table 5. Total Teacher-Child Contact

	High	*Middle*	*Low*
Public response opportunity	263	342	158
Total private interactions	197	272	170
Total number of teacher-child contacts	460	614	328
Percent of total teacher-child contacts	33%	44%	23%

Table 5 presents an overall index of teacher-child contact frequency. It combines the frequency of response opportunity (Table 1) with the total number of private teacher-student contacts (Table 4). The high saliency of the middle group for this sample of teachers is clearly evident. The middle group received twice as much teacher contact as the low group.

Qualitative Differences

Two types of qualitative differences in teacher-student interaction will be examined: level of question asked the students and teacher feedback to student responses.

Level of question refers to the response demand made upon the student. For levels are differentiated: process questions (questions that require the student to show understanding of academic knowledge or skill by making him explain at length); product questions (questions of factual knowledge requiring short answers); choice questions (response alternatives are provided in the question itself), and opinion questions (questions dealing with student opinion or experience).

Table 6 shows the frequencies of these questions in each expectancy group.

Table 6. Level of Question

	High	*Middle*	*Low*
Process	39 (15%)	34 (10%)	15 (9%)
Product	194 (74%)	270 (79%)	121 (77%)
Choice	19 (7%)	33 (10%)	19 (12%)
Opinion	11 (4%)	5 (1%)	3 (2%)
Total	263	342	158

Process questions, which demand more from the student, suggest a qualitative index. Lows received approximately half the number of process questions received by the high and middle groups. Chi Square results are near significance for both high-low and middle-low comparisons. In addition, product question frequencies (the bulk of response demands) reveal significant differences ($p < .05$) between the middle and low groups. Thus, while qualitative differences are suggested by the process question data (15% of questions directed to highs were process questions, 10% of questions to middles and lows were process questions), product question frequencies suggest that group differences are largely quantitative. In particular, the lows received fewer questions.

Results concerning teacher feedback to student response are presented below. Four feedback categories were considered: number of times students received praise after a correct answer, number of times student answers received no teacher feedback, and number of sustaining feedback responses (repeat, rephrase question from the teacher after incorrect student answers. Frequencies for these categories are presented in Tables 7, 8, 9, and 10.

Table 7. Number of Times Students Received Praise After Giving Right Answers

	High	*Middle*	*Low*
Teacher 1	1/49 (2%)	1/52 (2%)	0/10 (0%)
Teacher 2	8/30 (27%)	5/29 (17%)	2/20 (10%)
Teacher 3	4/93 (4%)	10/126 (8%)	8/70 (11%)
Teacher 4	1/13 (8%)	1/11 (9%)	2/3 (67%)
Total	14/185 (8%)	17/218 (8%)	12/103 (11%)

Table 8. Number of Times Students Received New Questions After Giving Right Answers

	High	*Middle*	*Low*
Teacher 1	6/49 (12%)	8/52 (15%)	1/10 (10%)
Teacher 2	6/30 (20%)	7/29 (24%)	8/20 (40%)
Teacher 3	4/93 (4%)	8/126 (6%)	4/70 (6%)
Teacher 4	1/13 (8%)	1/11 (9%)	0/3 (0%)
Total	17/85 (9%)	24/218 (11%)	13/103 (13%)

Table 9. Student Answers not Followed by Any Feedback From the Teacher

	High	*Middle*	*Low*
Teacher 1	2/75 (3%)	3/87 (3%)	1/17 (6%)
Teacher 2	9/46 (20%)	8/69 (12%)	3/30 (10%)
Teacher 3	7/123 (6%)	4/165 (2%)	5/102 (5%)
Teacher 4	1/19 (5%)	0/21 (0%)	1/9 (11%)
Total	19/263 (7%)	15/342 (4%)	10/158 (6%)

Table 10. Number of Times Teachers Responded With Sustaining Feedback After Student Failure

	High	*Middle*	*Low*
Teacher 1	5/24 (21%)	6/32 (19%)	2/6 (33%)
Teacher 2	3/7 (43%)	16/32 (50%)	4/7 (57%)
Teacher 3	11/23 (48%)	21/35 (60%)	16/27 (59%)
Teacher 4	0/5 (0%)	3/10 (30%)	2/5 (40%)
Total	19/59 (32%)	46/109 (42%)	24/45 (53%)

Inspection of Tables 7, 8, 9, and 10 reveals no differences in teacher feedback patterns for the three expectancy groups. However, it is interesting to note in Table 7 that all teachers had extremely low praise rates.

Discussion

The quantitative differences in teacher-child interaction found in the present study are consistent with research findings cited earlier in this paper. Results are clearly compatible with Good (1970) and Kranz, Weber, and Fishell (1970) who report quantitative differences in the interaction of the teacher with high and low achieveing students at the elementary level. Also, the results fit neatly with the only other study done at the secondary level: Horn (1914) found that lows had fewer recitation opportunities than highs and that the discrepancy increased with grade level. However, the quality of teacher interaction did not vary by student achievement level in this research. (Such differences in elementary school have been reported by Brophy and Good, 1970; Lahaderne, 1967; and Hoehn, 1954.)

The most notable finding of this study is that low achievement students received much less teacher contact than did the high-and middle-achievers. One possible explanation for the decreasing amount of participation by the low achieving students is that, relative to their classmates, they fall further behind each school year. Thus, at older age levels it may be more difficult for the low achiever to participate in substantive classroom discussions as there are greater real differences between high-and low-achieveing students. Teachers may be afraid of embarassing low-achievers and may therefore call on them less frequently.

The inequality of contact for lows provides some support for the differential expectation hypothesis. However, the middle group appears to have much more saliency for the teacher than had been predicted. The similarity of overall teacher treatment toward the high and middle groups does not support the differential expectation hypothesis. The high saliency of the middle students, observed in each of the four classrooms, suggests that the teachers geared much of their instructional activity to the middle group. This heavy attention to middle students was not predicted although the relative neglect of low achieving students was expected. Low-achieving students, whether in elementary or secondary schools, are consistently found to have a relatively inferior interaction pattern with the classroom teacher.

These results, combined with those of Horn (1914), provide support for the hypothesis that with grade level increase, qualitative differences in teacher-student interaction diminish, while quantitative differences may become more sensitive indicants of differential teacher behavior.

Implications

Teachers in this study called on low-achievers to answer questions much less frequently than middle-or high-achievers. They did attempt to compensate for their infrequent contact with low-achievers, however, by seeking them out in private interac-

tions. This strategy is perhaps motivated by two basic facts: (a) teachers do not want to embarass low-achievers by calling on them when they cannot respond correctly, and (b) teachers do not want to slow down the tempo of classroom discussions (and thereby penalize faster students). Although the strategy may accomplish these goals, it involves some undesirable side effects. For example, low-achievers, relative to other students, get less opportunity to express themselves orally and to practice communication skills. Yet these students need such basic practice at least as much as the others. In addition, if peers have developed undesirable attitudes toward these students (nothing they say is important), teacher failure to include them in class discussion may tend to perpetuate such attitudes. Furthermore, if teachers tend to assist these students in private, their success experiences will go unnoticed by other class members.

Rist (1970), in a case study following children from kindergarten through second grade, notes how quickly teacher expectations for low-achieving students are picked up and mirrored by other students in the class. Entwisle and Webster (1970) also note that if children's self-expectations are to be altered, it is necessary to change the expectations of peers as well as teachers. However, the behaviors observed in this study (high- and middle-achievers interact with the teachers during general class activities, while low-achievers work with teachers during independent study time) suggest that neither peer attitudes nor the abilities and self-concepts of low-achievers are being optimally affected.

When the class is taught as a whole, and during discussion periods, the low-achiever tends to be neglected. Instructional patterns are needed that allow low-achievers to register success experiences in front of peers and at the same time allow high-achievers to make maximum progress. For example, early in the year secondary teachers could allow high-achievers to work independently or in study teams on meaningful projects three days a week and hold a general discussion during the other two periods to discuss and expand project assignments. While high-achievers work on study projects, the teacher could have small group discussions with the low-achievers, helping them develop a variety of listening and communicative skills. Thus high-achievers could at times be gaining mastery of new content under the direct supervision of the teacher and at other times be assuming more responsibility and autonomy for their own learning. Meanwhile, low-achievers could be gaining confidence and experience in classroom discussion, an area of classroom life in which they typically play passive roles. After a few weeks highs and lows could be included in the same duscussions, allowing lows to demonstrate their newly acquired skills in discussions with classmates.

The above procedure is but one way in which teachers might attempt to increase the visibility of low-achievers in the classroom. This procedure does illustrate the key ingredient that has to be present if teachers' efforts are to be successful. Students must be given the chance to acquire necessary skills (to be taught) and to practice those skills if their own attitude about self and if peer attitude toward them is to be positively affected.

The present study provides information about differential teacher-child contacts in a secondary school. Obviously the present study needs to be replicated and extended to other secondary samples to test the veractiy of the data reported here and to identify more fully how teachers communicate their expectations to students. If the differential teacher behavior hypothesis is as wide-spread and important a factor as Kenneth Clark (1963) and others have suggested, continued collection of behavioral data in secondary schools will help remove the aura of magic surrounding self-fulfilling prophecy phenomena by showing that the processes involved can be conceptualized as a series of complementary and mutually reinforcing dyadic behaviors amenable to analysis and control. Such research activity will eventually open the way for communicating the results and implications to teachers in language they can understand and in a form that encourages application to their classroom behavior.

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